

ABSTRACT OF THE DISCLOSURE

A CRT device includes a cold cathode electron gun realizing high resolution in all current areas. A field emitter type cathode having a field emitter array and a gate electrode,  
5 a first grid electrode, and a second grid electrode constituting the electron gun are arranged in this order toward a phosphor screen. The potential  $V_{gate}$  of the gate electrode is higher as the beam current is larger. The potential  $V_{g1}$  of the first grid electrode takes a fixed value smaller than  
10 the potential  $V_{gate}$ . As the beam current increases, electrons passing through the gate electrode are accelerated more and converged to a lesser degree, whereas the lens strength of the cathode lens formed by the gate electrode, the first grid electrode, and the second grid electrode is enhanced more.  
15 Therefore, the beam diameter at the main lens can be made uniform regardless of the amount of beam current.